



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|--------------------------------|------------------|
| 10/632,826 | 08/04/2003 | Sadayoshi Kajino | 116777 | 9193 |
| 25944 | 7590 | 10/15/2004 | | |
| OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | | |
| | | | EXAMINER DONOVAN, LINCOLN D | |
| | | | ART UNIT 2832 | PAPER NUMBER |

DATE MAILED: 10/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,826

Applicant(s)

KAJINO ET AL.

Examiner

Donovan Lincoln

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08-04-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 02973577 in view of Nguyen et al. [US 6,380,833].

Regarding claim 1, Japan 02973577 disclose an electromagnetic switch [figure 1] for a starter comprising:

- a solenoid casing [26] configured into a cylindrical body having a bottom formed at one axial end with a circular opening provided on the bottom;
- a coil [11] accommodated inside the solenoid casing;
- a plunger [10] disposed slidably inside the coil via a cylindrical sleeve [24];
- a switch casing [34] surrounding an outer surface of the solenoid casing;
- and
- at least one projection [figure 2 or figure 3] provided on one of the outer cylindrical surface of the solenoid casing and the switch casing.

Japan 02973577 disclose the instant claimed invention except for at least one groove being mounted on one of the outer cylindrical surface of the solenoid casing and the switch casing to engage with each of at least one projection.

Nguyen et al. disclose a magnet assembly having a coil [16] with a casing [22] having a plurality of projections [28] engaging corresponding grooves [30] of a magnet housing [figure 1].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the projection/groove mounting design of Nguyen et al. with the solenoid switch of Japan 02973577 in order to prevent internal rotation of the magnet assembly.

Regarding claim 5, Japan 02973577 discloses the switch casing being integrally formed a center housing interposing between a starter and a motor [figure 1].

Regarding claim 6, Japan 02973577, as modified, discloses a plurality of grooves/projections at circumferential positions spaced at equal intervals.

Claims 2-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 02973577, as modified, as applied to claim 1 above, and further in view of Andoh et al. [US 2002/0145494 A1].

Regarding claim 2, Japan 02973577, as modified, disclose the instant claimed invention except for the coil lead lines being connected to connecting terminals of a switch cover and the switch cover being connected to the switch casing via a seal member.

Andoh et al. disclose a starter switch having a switch casing [figure 1] with a switch cover [10] including a pair of terminals [14a, 14b] connected to lead wires [2a, 2b] of the solenoid and a seal member [22] between the switch cover and switch casing [figure 1].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the terminal design of Anhod et al. with the starter of Japan 02973577, as modified, in order to provide connection for the coil.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a seal between the switch cover and switch casing in Japan 02973577, as modified, as suggested by Andoh et al., in order to protect the switch from the environment.

Regarding claim 3, Japan 02973577, as modified, disclose the instant claimed invention except for a ground plate being disposed at the other axial end of the solenoid casing with the coil interposed between the bottom of the casing and the ground plate and the ground plate fixed by a deformation at an opened end of the solenoid casing.

Andoh et al. further discloses the starter having a ground plate [19] being disposed at the other axial end of the solenoid casing with a coil [2, 3] interposed between the bottom of the casing and the ground plate and the ground plate fixed by a deformation at an opened end of the solenoid casing [figure 1].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ground plate design of Japan 02973577, as modified, as suggested by Andoh et al., with the solenoid assembly of Japan 02973577, as modified, in order to reduce shock hazard.

Regarding claim 8, Andoh et al. further shows the switch cover including motor terminals [5, 6] and the coil terminals disposed oppositely about the axial center of the switch cover [figures 1 and 2b].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use terminal design of Anhoh et al. in Japan 02973577, as modified, in order to facilitate connection and provide isolation for the terminals.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 02973577, as modified, as applied to claim 1 above, and further in view of Bögner [US 4,987,396].

Japan 02973577 disclose the instant claimed invention except for the solenoid casing having a cylindrical portion protruding outward in the axial direction from the periphery of the circular opening of the bottom and the sleeve being inserted therein.

Bögner discloses a starter switch solenoid casing including a cylindrical portion protruding outward in the axial direction from the periphery of the circular opening of the bottom and a sleeve [3] being inserted therein [figure 1].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the casing design of Bögner with the casing of Japan 02973577, as modified, for the purpose of guiding and supporting the plunger throughout its travel length.

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donovan Lincoln whose telephone number is (571) 272-1988. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ldd

28
LINCOLN DONOVAN
PRIMARY EXAMINER
GROUP 2100